

CLAIMS

What is claimed is:

1. A surgical clip with an interlocking latch mechanism, comprising:
 - (a) a first leg and a second leg, each of said legs having an inner vessel-clamping surface and an outer surface, said inner surfaces being positioned in opposition to each other;
 - (b) a flexible hinge section integrally disposed between and joining the proximal ends of said first and second legs; and
 - (c) a female locking member positioned on the distal end of said first leg and comprising a resilient inwardly turned hook defining a recess in the mouth of said hook, and a male locking member positioned on the distal end of said second leg comprising at least one detent extending outwardly therefrom, said female and male locking members being formed whereby when said first and second leg members are moved from an open position to a closed position about said hinge section, said resilient hook of said female locking member is urged open to receive the detent of said male locking member in the recess thereof so as to removably lock said first and second leg members of said surgical clip in said closed position.
2. The surgical clip of claim 1, further comprising a gusset within the mouth of said hook.
3. The surgical clip according to claim 2, wherein said gusset divides said recess in the mouth of said hook so as to form a bifurcated recess.
4. The surgical clip according to claim 1, wherein the at least one detent extending outwardly from said male locking member comprises two spaced-apart detents each having an inwardly turned lip extending generally toward said flexible hinge section for lockingly engaging said recess in the mouth of said hook.
5. The surgical clip of claim 1, wherein said inner surface of said first leg has a concave radius of curvature between said hinge section and its distal end, said outer surface of said first leg has a convex radius of

- 5 curvature between said hinge section and its distal end, said inner surface of said second leg has a convex radius of curvature between said hinge section and its distal end, and said outer surface of said second leg has a concave radius of curvature between said hinge section and its distal end.
6. The surgical clip of claim 1, further comprising a pair of bosses joined to opposite sides of said first leg between said hinge section and the distal end of said first leg, and a pair of bosses joined to opposite sides of said second leg at the distal end of said second leg.
- 10 7. The surgical clip of 6, wherein a portion of said pair of bosses joined to said first leg extend beyond said outer surface of said first leg to form a bridge section.
8. The surgical clip of claim 6, wherein said pair of bosses on said second leg each have a sharp tissue-penetrating tooth extending therefrom toward said first leg.
- 15 9. The surgical clip of claim 1, wherein at least one of said inner surfaces of said clip comprises a plurality of protrusions extending from said inner surface for providing improved vessel retention during and following closure of said clip.
- 20 10. The surgical clip of claim 9, wherein both of said inner surfaces of said clip comprise said plurality of protrusions.
11. The surgical clip of claim 1, wherein said hinge section has a continuous concave inner surface and a continuous convex outer surface.
12. A surgical clip with an interlocking latch mechanism, comprising:
- 25 (a) a first leg and a second leg, each of said legs having an inner vessel-clamping surface and an outer surface, said inner surfaces being positioned in opposition to each other;
- (b) a flexible hinge section integrally disposed between and joining the proximal ends of said first and second legs; and
- 30 (c) a female locking member positioned on the distal end of said first leg and comprising a resilient inwardly turned hook defining a bifurcated recess in the mouth of said hook, and a male locking

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member positioned on the distal end of said second leg comprising two outwardly extending spaced-apart detents each having an inwardly turned lip extending generally toward said flexible hinge section to facilitate said detents lockingly engaging said recess, whereby when said first and second leg members are moved from an open position to a closed position about said hinge section said resilient hook of said female locking member is urged open to receive the detent of said male locking member in the recess thereof so as to removably lock said first and second leg members of said surgical clip in said closed position.

13. The surgical clip of claim 12, further comprising a gusset within the mouth of said hook.

14. The surgical clip of claim 12, wherein said inner surface of said first leg has a concave radius of curvature between said hinge section and its distal end, said outer surface of said first leg has a convex radius of curvature between said hinge section and its distal end, said inner surface of said second leg has a convex radius of curvature between said hinge section and its distal end, and said outer surface of said second leg has a concave radius of curvature between said hinge section and its distal end.

15. The surgical clip of claim 12, further comprising a pair of bosses joined to opposite sides of said first leg between said hinge section and the distal end of said first leg, and a pair of bosses joined to opposite sides of said second leg at the distal end of said second leg.

16. The surgical clip of 15, wherein a portion of said pair of bosses joined to said first leg extend beyond said outer surface of said first leg to form a bridge section.

17. The surgical clip of claim 15, wherein said pair of bosses on said second leg each have a sharp tissue-penetrating tooth extending therefrom toward said first leg.

18. The surgical clip of claim 12, wherein at least one of said inner surfaces of said clip comprises a plurality of protrusions extending from said inner

surface for providing improved vessel retention during closure of said clip.

19. The surgical clip of claim 18, wherein both of said inner surfaces of said clip comprise said plurality of protrusions.
- 5 20. The surgical clip of claim 12, wherein said hinge section has a continuous concave inner surface and a continuous convex outer surface.